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10/663,866	09/15/2003	Deepak Ayyagari	8371-156	3126

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EXAMINER	
WU, JIANYE	

ART UNIT	PAPER NUMBER
2616	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/663,866	AYYAGARI, DEEPAK	
	Examiner	Art Unit	
	Jianye Wu	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 August 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *1-4 and 6-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 6-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 11-12** are rejected under 35 U.S.C. 102(b) as being anticipated by Andrew S. Tanenbaum, "Computer Networks", Third Edition, 1996 (hereinafter **Tanenbaum**).

For **Claim 11**, Tanenbaum discloses a method of classifying data packets in a communication system, the method comprising:

analyzing a set of parameters (parameters defined in IP packet header, Fig. 5-45, Page 413) in an incoming data packet (IP packet, Page 413), wherein the set of parameters analyzed depends upon a type of service (Type of service, protocol, and etc, Fig. 5-45, Page 413) access point from which the data packet came;

if the set of parameters in the data packet match a predefined set of parameters associated with connection (configured parameter values associated with the connection); associating a connection identifier (identification, or source address or destination address of Fig. 5-45, Page 413) for the predefined set of parameters with the packet.

As to **claim 12**, Tanenbaum discloses the method of claim 11, further comprising analyzing the data packet according to a plurality of sets of parameters, each set of parameters including a priority ("precedence field", page 414, line 9-10);

Wherein the sets of parameters are used in analyzing the data packet in order of priority (description on "precedence field", page 414, line 10-15).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

> 1. Determining the scope and contents of the prior art.
> 2. Ascertaining the differences between the prior art and the claims at issue.
> 3. Resolving the level of ordinary skill in the pertinent art.
> 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. **Claims 1-4, 14-19** are rejected under 35 U.S.C. 103(a) as being unpatentable over W. Richard Stevens, "UNIX Netwrok Programming", 1990, (hereinafter **Stevens**) in view of Raphaeli et al (US 20030103521, hereinafter **Raphaeli**).

For **claim 1**, Stevens discloses a method of converting application data to transport data in a communication system the method comprising:

receiving application data from an application in a device through a service access point (a socket created by the socket System call, page 267, with description page 267-269, where the socket created by socket(int family, int *type*, int *protocol*) is an service access point);

classifying the application data as IP based (socket(int *family*, ...) with *family* being AF_INET, page 267), or non-IP based (socket(int *family*, ...) with *family* being AF_UNIX, page 267) according to the associated service access point;

determining if a connection exists for the application data (a connection can be created or checked by system call connect () system call, page 270, last line; the system call connection(int sockfd, struct sockaddr *servaddr, int addrlen) is described in page 270-272; for a connection-oriented connection, system calls listen() and accept() are also used to make the connection, page 272; sample code in page 273, line 9-35 shows to create a connection) in response to the classification of the application data;

transmitting the transport data across the communication system (send(), sendto(), page 274).

Stevens **is silent on** the communication system is a power line communication system.

Raphaeli teaches a power line communication system (FIG. 1, explained in [0008]) wherein a method of converting application data to transport data (application layer, [0005]) is described.

Stevens teaches IP network at network layer 3 and above, while Raphaeli discloses a specific communication system known as the power line communication

system at network layer 2. One with ordinary skill in the art would have been motivated to combine them together to provide a full network stack of the power line communication system.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine Stevens with Raphaeli in order to apply IP protocol to the power line communication system.

As to **claim 2**, Stevens and Raphaeli in combination disclose the method of claim 1, Stevens further teaches the method comprising automatically establishing a connection if none exists, comprising:

generating a connection specification based upon the application data and the service access point; and establishing a connection based upon the connection specification (sample code in page 273, line 9-35, which shows to establish a connection with desired configuration parameters for the connection) and

mapping the application data into transport data for that connection (using system calls send(), sendto(), recv() and recvfrom(), page 274).

As to **claim 3**, Stevens and Raphaeli in combination disclose the method of claim 1, Stevens further teaches wherein receiving application data from an application further comprises receiving connection-oriented application data from the application (using system calls recv() and recvfrom(), page 274).

As to **claim 4**, Stevens and Raphaeli in combination disclose the method of claim 1, Stevens further teaches wherein receiving application data further comprises:

receiving connectionless application data from the application (setting up a connectionless connection via socket() with *family* parameter being set as SOCK_DGRAM, and protocol being set UDP, then using system calls recv() and recvfrom(), page 274); and mapping the connectionless application data into transport data for a power line communication system connection (using system calls send(), sendto(), recv() and recvfrom(), page 274); wherein the power line communication system is connection-oriented (at MAC layer the power system is connection-oriented, as disclosed by Raphaeli in claim 1).

As to **claim 14**, Stevens and Raphaeli in combination disclose the method of claim 1, Stevens further discloses the method comprising:

Accessing a classification table (the table containing all values of 5-tupe, page 269, line 4-10) for a mapping of the service access point to a connection identifier (5-tupe, page 269, line 4-10); and

providing a connection associated with the connection identifier as the connection (the connection associated with the socket explained in claim 1).

As to **claim 15**, Stevens and Raphaeli in combination disclose the method of claim 1, Stevens further discloses the method comprising:

Accessing a classification table (the table containing all values of 5-tupe, page 269, line 4-10) for a mapping of the service access point and at least one of an IP address, a port number, and a type of service field to the connection identifier (5-tupe, page 269, line 4-10); and

Providing a connection associated with the connection identifier as the connection (the connection associated with the socket explained in claim 1).

As to **claim 16**, Stevens and Raphaeli in combination disclose the method of claim 1, Stevens further discloses the method comprising:

Accessing a classification table (the table containing all values of 5-tupe, page 269, line 4-10) for a mapping of the service access point, an IP address to a connection identifier, a port number to the connection identifier (5-tupe, page 269, line 4-10).

Providing a connection associated with the connection identifier as the connection (the connection associated with the socket explained in claim 1).

As to **claim 17**, Stevens and Raphaeli in combination disclose the method of claim 1, Stevens further discloses the method comprising:

Comparing the application data with at least one classifier rule for a match (comparing values of 5-tupe, page 269, line 4-10 with the configured set); and

Providing a connection associated with a matching classifier rule as the connection (the connection associated with the socket explained in claim 1).

As to **claim 18**, Stevens and Raphaeli in combination disclose the method of claim 17, Stevens further discloses the method comprising:

Comparing the application data only with classifier rule associated with the service access point (comparing the 5-tupe at the receiving end socket, page 269, line 4-10).

As to **claim 19**, Stevens and Raphaeli in combination disclose the method of claim 17, comparing the application data only at least one destination address within the

at least one classifier rule (comparing the 5-tupe at the receiving end socket, page 269, line 4-10).

Stevens and Raphaeli do not explicitly disclose that application data that is audio/visual application data.

However, what they teach applies to any kind of data.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine Stevens with Raphaeli due to obvious industry expedient.

5. **Claims 6-10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Andrew S. Tanenbaum, "Computer Networks", Third Edition, 1996 (hereinafter **Tanenbaum**) in view of Stevens.

For **Claim 6**, Tanenbaum discloses a method of transmitting data on a network, the method comprising:

receiving an incoming data packet from an application on a device at one of a plurality of service access points (SOCKET, Fig. 6-6; or Lines 1-2 of first paragraph of Section 6.2.1, Page 489, where a service point is considered as one of many processes);

associating the packet with a connection (CONNECT, Fig. 6-6 of Page 487).

routing the packet to the connection (Lines 1-3 of first paragraph of Section 5.2, Page 345); and

transmitting the data (Fig. 6-8, Page 490).

Tanenbaum does not explicitly teach classifying the data packet according to the service access point and at least one rule.

Stevens teaches discloses classifying the data packet according to the service access point (Lines 7-12, Page 268; socket type defines as one of SOCK_STREAM, SOCK_DGRAM, and etc.) and at least one rule (last 3 lines of Page 268; *protocol* argument of socket is specified to use a specific protocol).

Stevens simply teaches details of the socket that is disclosed by Tanenbaum, therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine Tanenbaum with Stevens to classify the packet according to service point and process the packet following at least one rule due to obvious industry expedient.

As to **claim 7**, Tanenbaum and Stevens in combination disclose the method of claim 6, Tanenbaum further teaches the method comprising fragmenting the packet into smaller packets as needed based upon the packet size (Fig. 6-4, Page 485).

As to **claim 8**, Tanenbaum and Stevens in combination disclose the method of claim 6, the method comprising fragmenting the packet into smaller packets as needed (Fig. 6-38 in page 548).

Tanenbaum **does not** explicitly teach that the fragmenting depends upon the bandwidth of the connection.

However, packet fragmentation and its relationship to bandwidth have major impact on the efficiency and quality of service [such as delay] of network operation.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to fragmenting depends upon the bandwidth of the connection for the benefit of efficiency and quality of service enhancement of network operation.

As to **claim 9**, Tanenbaum and Stevens in combination disclose the method of claim 6, Tanenbaum teaches classifying the data packet further comprising determining if a connection exists for the packet, and requesting a connection if a connection does not exist (Lines 3-4 of Page 487).

As to **claim 10**, Tanenbaum and Stevens in combination disclose the method of claim 6, Tanenbaum further teaches classifying the data packet further comprising analyzing a set of parameters of the data packet (parameters of IP packet header, Fig. 5-45, page 413) to determine if the parameters match those of a rule (rule to compare parameters of a packet to a set of the socket parameters associated with the connection,), and if the parameters do match, associating the data packet with a connection identified by a connection identifier (id of the socket associated with the connection) in the rule.

6. **Claim 13** is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanenbaum.

As to **claim 13**, Tanenbaum discloses the method of claim 11, the method comprising transmitting the set of parameters if the set of parameters do not match a predefined set of parameters (option negotiation, 5th paragraph of Page 483; the same principle applies to socket parameters associated with the connection).

Tanenbaum is silent on sending the set of parameters to a connection manager.

However, the connection manager is the control center for all information related to connections.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to have the set of parameters being sent to a connection manager for the benefit of having better network management.

Response to Amendments/Arguments

7. Applicant's arguments filed on 8/9/2007 have been fully considered but they are not persuasive.

8. Claim rejection under 35 USC 102:

For claims 11-13 (pages 6-7), Applicant amended claims, claiming the parameters are parameters of the data packet. The rejection are made based on these amended claims, claims 11-12 are rejected under 35 USC 102, and claim 13 is now rejected under 35 USC 102.

Applicant also argues the following:

a) Applicant is not clear why TCP socket is interpreted as a service access point;

b) Tanenbaum does not teach priority for servicing connections so that "the priority for servicing connections so that higher priority connections are services before lower priority connections".

In response:

a) TCP socket is interpreted as a service access point because it specifies access point characteristic such as protocol family (Internet protocol, UNIX, and etc.), stream type (SOCK_STREAM for stream, SOCK_DGRAM for datagram, SOCK_RDM

for reliably delivered message and etc.), and protocol (IPPROTO_UDP, IPPROTO_TCP, IPPROTO_RAW and etc.). Socket is so well known and widely used in the art that one with ordinary skilled in the art would know it.

b) The first paragraph of page 483 (as cited in the Office Action) of Tanenbaum starts with "The priority parameter provides a way for a transport user to indicate that some of its connections are more important than other ones, and in the event of congestion, to make sure that the high-priority connections get service fore the low-proiority ones", which clearly teaches "the priority for servicing connections so that higher priority connections are services before lower priority connections". Tanenbaum also teaches priority for servicing connections with the "precedence field"in page 414, line 9-10, as described in the Office Action above.

9. Claim rejection under 35 USC 103:

A. claim 1 (page 7-8): the claim has been amended by Applicant. In response to Applicant's argument, Examiner states that socket is a service access point, and it can be used for IP based applications, as well as non-IP based applications. More details can be found in the rejection to this claim based on the amended claim above.

B. claim 4 (page 8-9): the claim has been amended by Applicant. New rejection to this claim based on the amended claim is presented in this Office Action.

Applicant argue:

In contrast, as described in the cited section of Tanenbaum, at the transport layer or the network layer, the connection is either connection-oriented or connectionless. Tanenbaum, p. 480. However, no mention is made of the connection orientation of the application data presented to tlne transport layer.

In response, Tanenbaum recites "Just as there are two types of network service, connection-oriented and connectionless, there are also the same two types of transport service" in page 480.

C. claims 14-19 (page 9-10): These are newly added claims and Applicant's arguments are based the assumption that Examiner would use Tanenbaum as the prior art to make the rejection. The Applicant's arguments are moot since Examiner does not use Tanenbaum to make the rejection to these claims. Please see the rejections to these claims in the Office Action above.

D. claim 6 (page 10-11): Applicant argues socket can not classify data packet since there is no data packet when a socket is created.

In response, socket system call does classify the data packets that the socket with parameters "family", "type" and "protocol". As mentioned before that socket concept and its API are considered common knowledge in the art and one with ordinary skilled in art would know; when a packet arrive with no matching socket available to deliver it, a new socket would be created for it, as indicated by Tanenbaum.

E. claim 10 (page 11): the claim has been amended by Applicant. Applicant argues is moot since Examiner made the rejection based on a new ground due to the amendment of the claim. Please see the rejection to this claim based on the amended claim above for Examiner's response.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jianye Wu whose telephone number is (571)270-1665. The examiner can normally be reached on Monday to Thursday, 8am to 7pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571)272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic

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Jianye Wu

10/1/07

Seema S. Rao 10/17/07

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